39752
S/126/62/014/001/008/018
E193/E383

18.8200

AUTHOR: Pavlov, V.A. and Pereturina, I.A.

TITLE: The effect of alloying additions on the mechanics of plastic deformation of alloys and on the shape of the stress/strain diagram

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 1, 1962, 92 - 98

TEXT: The object of the work described in the present paper was to analyze a large body of experimental data obtained by the present authors and by other, both Soviet and foreign, workers and to correlate data relating to pure metals (Al, Ni) and alloys (Al-Mg, Ni-Cu, Ni-Al, Ni-Co) in order to evaluate the effect of alloying on some aspects of plastic deformation of metals. The first chapter is devoted to the temperature-dependence of the yield point. The effect of alloying on this relationship is demonstrated schematically in Fig. 1, where the yield point (σ) is plotted against temperature (T), curves 1 and 2 relating, respectively, to pure metals and alloys. The

The effect of alloying ....

difference is that curve 2 has a maximum which is a common feature of many alloys constituting solid solutions. The height of this maximum and its position depend on the rate of strain; this dependence is, obviously, governed by plastic deformation-induced diffusion processes whose nature may change from alloy to alloy and which may be associated with decomposition of the solid solution, changes in the short-range order, changes in the K-state or redistribution of alloying additions in the stress field of moving dislocations. As to the concentration-dependence of the yield point, it is generally accepted that this property is related to the magnitude of static distortions of the crystal lattice $\sqrt{u_{cT}^{-2}}$, caused by the alloying-additions atoms, and that the yield point increases with increasing $\sqrt{u_{cT}^{-2}}$.

At low concentrations of the alloying elements, however, alloying brings about a decrease in the yield point of metals. This is demonstrated in Fig. 2, where the yield point (σ, kg/mm^2) of Ni-Cu alloys at temperatures indicated by each curve is plotted

Card 2/4

The effect of alloying ....

against the Cu content (%). The presence of a maximum on curves of this type has been attributed to the refining (purifying) effect of small alloying additions. Since, however, the magnitude of this effect in Ni-Al alloys decreases with increasing rate of strain (or with decreasing temperature in the case of Ni-Cu alloys) it is obvious that it must be caused by some other factors. Passing-on to the effect of alloying additions on the shape of the true-stress/strain diagram, the authors distinguish between two types of this diagram. In the low-temperature type, the stress reaches its maximum near the end of the diagram (i.e. at high strain values) after which it decreases rapidly due to the onset of localized deformation (necking); in the high-temperature type the maximum of the true stress is reached near the beginning of the diagram (i.e. at low strain values); after that the stress remains constant or slowly decreases and finally falls down rapidly when the neck begins to form. In all the systems studied the introduction of alloying elements raises the temperature at which the stress/strain diagram changes from the low-temperature to the high-temperature type. The addition of alloying elements increases also the value

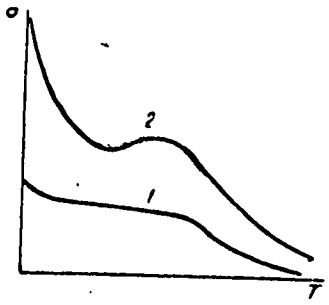
The effect of alloying ....

of stress σ_{III} at which the parabolic increase in the resistance-to-deformation of strained metal begins. This indicates a decrease in the energy of the stacking faults. There are 9 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals of the AS USSR)

SUBMITTED: July 29, 1961 (initially)
December 27, 1961 (after revision)

Fig. 1:



SOV/137-58-8-17716

Translation from: Referativnyy zhurnal, Metallurgiya 1958, Nr 8, p 217 (USSR)

AUTHORS: Pavlov, V. A., Gaydukov, M. G., Grin', A. V., Peretur.na, I. A.

TITLE: The Effect of Static Distortions of the Crystal Lattice on the Mechanical Properties of Alloys of Solid Solutions of Aluminum With Magnesium (Vliyaniye staticheskikh iskazheniy kristallicheskoy reshetki na mekhanicheskiye svoystva splavov α-tverdogo rastvora alyuminiya s magniyem)

PERIODICAL: V sb.: Issled. po zharoprochn. splavam. Vol 2. Moscow AN SSSR, 1957, pp 257-265

ABSTRACT: Investigations performed dealt with the effect of static distortions of the crystal lattice on the mechanical properties of an α-solid solution of Al-Mg (0.01-2% Mg) the cohesive forces in which are independent of the concentration of the solid solution. In studying the relationship between E and the temperature, it was established that E and G do not depend of the concentration within a relatively wide range of temperatures, 20-700°C. The structure of alloys which had been deformed as well as the processes occurring during deformation were studied by means of investigation of the internal friction (IF)

Card 1/3

The Effect of Static Distortions of the Crystal Lattice (cont.)

within plastically deformed alloys. The IF was determined at torsional vibrations with a frequency of 1 cps. The IF graph for pure Al exhibits one maximum at approximately 250°, whereas the IF graphs of alloys show two maxima at 130° and at 250°. In the recrystallized state, the alloys exhibit one maximum at 300°, a condition indicative of relaxation along the grain boundaries. The maximum IF point, corresponding to 250° and situated in the region of recrystallization (R) temperatures, is governed by the viscous behavior of the slip lines. In the light of dislocation theory this maximum is attributable to the dispersion of energy connected with the motion of dislocations (D) under the influence of external stresses. The IF maximum at 130° is attributable to the diffusion of Mg in alloys which have been deformed. As the concentration of Mg in the solid solution is increased, this maximum is displaced toward higher temperatures (up to 200°). The energy of activation of the diffusion of Mg throughout deformed alloys increases with increasing concentrations of Mg. In alloys which have been deformed and which exhibit static distortions, the additives are unevenly distributed throughout the volume, a condition which, as shown by experiments significantly affects the kinetics of plastic deformation, recovery, and recrystallization. In the light of the dislocation theory, the increase in R temperature is explained by the formation of clouds of Mg atoms around the D's with resulting reduction

Card 2/3

SOV/137 58 8 17716

The Effect of Static Distortions of the Crystal Lattice (cont.)

in the mobility of the latter. Bibliography: 18 references See also RZhMet 1958; Nr 3, abstract 5868

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1. Aluminum-magnesium alloys--Mechanical properties
2. Crystals--Distortion 3. Crystals--Lattices

Card 3/3

126-5-3-14/31

AUTHORS: Grin', A.V., Pavlov, V. A. and Pereturina, I. A.

TITLE: Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys (Vliyaniye staticheskikh iskazheniy kristallicheskoy reshetki na mekhanicheskiye svoystva splavov alyuminiya s magniyem) I. Dependence of the Yield Point and the Ultimate Strength on the Temperature and the Speed of Deformation (Zavisimost' predela tekuchesti i vremennogo soprotivleniya ot temperatury i skorosti deformirovaniya)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol 5, Nr 3. pp 493-500 (USSR)

ABSTRACT: The aim of the work described in this paper was to study the influence on the mechanical properties of the static distortions of the crystal lattice which are caused by atoms of the dissolved elements and the diffusion processes taking place as a result of stresses occurring during plastic deformation. Aluminium-magnesium alloys were used in the experiments. Earlier investigations of one of the authors and his team (Refs.10, 11) have shown that considerable static distortions of the crystal lattice take place, which are brought about by magnesium atoms but

Card 1/5

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys. I. Dependence of the Yield Point and the Ultimate Strength on the Temperature and the Speed of Deformation

the bond forces do not change the composition of the alloy. Such a combination of properties permits studying in the pure form the influence of crystal lattice distortions on the mechanical properties. The authors investigated the temperature dependence of the yield point and the ultimate strength of pure aluminium (containing about 0.01% Mg, 0.0017% Fe, 0.0014% Si, 0.0011% Cu) and its magnesium alloys (0.05, 0.1, 0.3, 0.5 and 1% Mg) in the temperature range between 80 and 700°K for widely differing deformation speeds ($6.4 \cdot 10^{-3}$, $2 \cdot 10^{-1}$, $2 \cdot 10^{-4}$). It was established that for pure aluminium the temperature dependence of the yield point in the temperature range up to 500°K is determined fundamentally by a change in the interatomic bond forces. At elevated temperatures a more pronounced dependence was detected of the yield point on the temperature, which is apparently due to deformations along the grain boundaries. Hardening of the aluminium alloys with magnesium is caused by static distortions of

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys.
I. Dependence of the Yield Point and the Ultimate Strength on the Temperature and the Speed of Deformation

the crystal lattice which are brought about by magnesium atoms. The diffusion processes lead to a non-monotonous dependence of the yield point on the temperature, an anomalous dependence on the speed of deformation and a complication of the dependence of the mechanical properties on the composition of the alloy and on the conditions of deformation. Maxima were observed of the yield point in the temperature range of about 500°K and increased values at 80°K which are attributed to various types of diffusion processes taking place in the case of deformation under the effect of stresses. Thus, it was found that static distortions of the crystal lattice, brought about by the magnesium atoms, cause an increase in the yield point and the ultimate strength. In the second part of this paper (1958, Vol VI, Nr 1, pp.110-115), the authors investigate the total and the uniform deformation of alloys of aluminium with magnesium in the temperature range of 80 to 700°K for the same range of speeds of deformation. They found that

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys.
I. Dependence of the Yield Point and the Ultimate Strength on the Temperature and the Speed of Deformation

the static distortions of the crystal lattice caused by magnesium atoms reduces the plasticity and that the diffusion processes taking place as a result of the stresses during deformation of alloys bring about an increase in the plasticity and complicate the temperature dependence of the total and the uniform elongations. In alloys of aluminium with magnesium, the crystal structure of which has suffered static distortions, a complicated dependence is observed of the total and the uniform elongations on the temperature and the speed of deformations. The plastic properties of such alloys is apparently determined by several factors which act simultaneously, namely: a more uniform distribution of the plastic deformation along the volume of the crystal and an increase of the effective volume which participates in the deformation, brings about an increase in the plasticity of the alloys; a diffusion of the atoms of the alloying elements under the effect of stresses taking

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys.
I. Dependence of the Yield Point and the Ultimate Strength on the Temperature and the Speed of Deformation

place during deformation and causing a reduction of the peaks of over-stresses in the neighbourhood of non-uniformities of the crystal lattice and in the neighbourhood of microscopic cracks bring about an increase of the plasticity; an increase of the types II and III distortions during plastic deformation and an increase of the resistance to deformation in the alloys bring about a reduction in the plasticity. Obviously, the interaction of these factors will cause a sufficiently complicated dependence of the uniform and the total elongations on the composition of the alloy and the conditions of deformation.

Card 5/5

There are 8 figures and 23 references, 15 of which are Soviet, 7 English, 1 German.

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR (Institute of Metal Physics, Ural Branch, Ac.Sc., USSR)

SUBMITTED: August 11, 1956.

1. Alloys--Mechanical properties 2. Alloys--Temperature factors 3. Crystals--Lattices 4. Crystals--Distortion

AUTHORS: Pavlov, V.A.,
Pereturina, I.A.

TITLE: Mechanical Properties of the Nickel-Copper Alloys (Mekhanicheskiye svoystva splavov nikelya s med'yu)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 4, pp 717-724 (USSR)

ABSTRACT: The effect of the temperature and the rate of deformation on the yield point, σ, of pure nickel and its alloys containing 10, 20, 40 and 60% copper was investigated. High purity (99.99%) electrolytic nickel and electrolytic copper with less than 0.05% impurities, both degassed by re-melting in a vacuum of 10^{-5} mm Hg, were used for the preparation of the experimental alloys melted in vacuum. The ingots were forged into 10 x 10 mm rods whose size was then reduced to 5 x 5 mm by rolling. This was followed by several wire-drawing operations with intermediate anneals. The conditions of the final heat treatment were adjusted so as to obtain the same grain size (approx 0.1 mm) in all the investigated alloys. The tensile tests were carried out on wire test pieces (1 mm diameter, 55 mm long) at temperatures ranging

Mechanical Properties of the Nickel-Copper Alloys

from -196 to + 700°C and at three rates of strain: 2×10^{-4}, 6.4×10^{-3} and 2×10^{-1} cm/sec. The graphs showing the temperature dependence of σ of pure nickel and its alloys deformed at various rates of strain are reproduced in Fig.1, 2 and 3. The variation of σ of pure nickel with temperature is very small up to 600°K, while above this temperature it decreases exponentially. (The $\ln \sigma$ versus 1/T graph is shown in Fig.4) It is easy to show that the temperature dependence of σ in the low temperature region is determined mainly by the variation of the atomic bond forces with the temperature: Graph 1 in Fig.5 shows the temperature dependence of the yield point/elastic modulus ratio (σ/E) for polycrystalline nickel. It can be seen that up to 600°K this ratio remains practically constant. (In the case of a single nickel crystal, the temperature interval within which σ varies little with temperature is even wider, as is shown by graph 2 in Fig.5 which represents the temperature dependence of τ/E, where τ is the critical shear stress). This effect which has been also observed

Card 2/6

Mechanical Properties of the Nickel-Copper Alloys

in aluminium (Ref.2, 11), copper (Ref.12) and gold (Ref.10) appears to be a characteristic of metals with the face-centred cubic crystal lattice. The yield point of the Ni-Cu alloys is higher than that of pure nickel and reaches its maximum value at 40% Cu (Fig.2). The fact that G of all alloys is greatly affected by temperature cannot be explained by the variation of the atomic bond forces with temperature: The temperature dependence of G/E of three alloys deformed at the same rate of strain is shown in Fig.6, and it is quite apparent that this ratio depends to a considerable degree on the temperature at which the alloy is being deformed. In addition, the variation of G with the temperature is not monotonic: The G/T graphs show two maxima, one in the high temperature range, the other approx 200°K. The magnitude and location of these maxima depend on the composition of the alloy and on the rate of strain. In general, the magnitude of the critical point (U.T.S.) increases with increasing copper content up to 40% Cu and then decreases. However, more careful examination of the strain/stress curves reveals that the increase

Card 3/6

of U.T.S. is associated mainly with the increase of the yield point: If the strain/stress curves of the investigated alloys are drawn together in such a way that the yield point coincides with the origin of the co-ordinates, it is seen that the increase of the stress due to strain hardening is less in the nickel alloys than in pure nickel (Fig.7). The experimental results are correlated with those obtained by other workers and the following conclusions are reached:

(i) The variation of the atomic bond forces and static lattice distortions cannot account for the increased strength of the Ni-Cu alloys, since the former decrease with the rising Cu content, while the lattice distortions at temperatures higher than 300°C are quite small.

(ii) The increased strength of the investigated alloys is caused mainly by non-uniform distribution of the atoms of the alloying element in the solid solution. It is postulated on the basis of the experimental results that there are three possible causes of non-uniform

Mechanical Properties of the Nickel-Copper Alloys

distribution of the solute atoms: (a) High concentration of the atoms of the alloying element at the grain and sub-grain boundaries, (b) Formation of solute atom "clouds" around the dislocations, (c) Short-range order i.e. deviation from the statistical distribution of the solute atoms in the solid solution.
(iii) The yield point of pure nickel consists of two components: One due to shear within the grains whose value changes very slightly with the temperature and the other due to shear along the grain boundaries, the temperature dependence of which is approximately exponential.
(iv) From the non-monotonic character of the temperature dependence of σ, and from the effect of the rate of strain on this relationship, the diffusion character of

Card 5/6

SOV/126-6-4-21/34

Mechanical Properties of the Nickel-Copper Alloys

the interaction between dislocations and the solute atoms (or groups of atoms) can be inferred. There are 9 figures and 30 references of which 18 are Soviet, 10 English and 2 German.

ASSOCIATION: Institut Fiziki Metallov Ural'skogo Filiala AN SSSR (Institute of Metal Physics, Ural Branch of the AS USSR)

SUBMITTED: 5th August 1958.

Card 6/6

AUTHORS: Grin', A. V., Pavlov, V. A. and Pereturina, I. A. SOV/126-6-1-14/33

TITLE: Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys (Vliyaniye staticheskikh iskazheniy kristallicheskoy reshetki na mekhanicheskiye svoystva splavov alyuminiya s magniyem)
II Dependence of the Total and of the Uniform Deformation on the Temperature and the Speed of Deformation (II Zavisimost' polnoy i ravnomernoy deformatsii ot temperatury i skorosti deformirovaniya)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 1, pp 110-115 (USSR)

ABSTRACT: The aim of the work described in the first part of this paper (1957, Vol 5, Nr 3, pp 493-500) was to study the influence on the mechanical properties of the static distortions of the crystal lattice which are caused by atoms of the dissolved elements and the diffusion processes taking place as a result of stresses occurring during plastic deformation. Aluminium-magnesium alloys were used in the experiments. Earlier investigations of one of the authors and his team have shown that

Card 1/6

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys
II. Dependence of the Total and of the Uniform Deformation on the Temperature and the Speed of Deformation

considerable static distortions of the crystal lattice take place, which are brought about by magnesium atoms but the bond forces do not change the composition of the alloy. Such a combination of properties permits studying in the pure form the influence of crystal lattice distortions on the mechanical properties. The authors investigated the temperature dependence of the yield point and the ultimate strength of pure aluminium (containing about 0.01% Mg, 0.0017% Fe, 0.0014% Si, 0.0011% Cu) and its magnesium alloys (0.05, 0.1, 0.3, 0.5 and 1% Mg) in the temperature range between 80 and 700°K for widely differing deformation speeds ($6.4 \cdot 10^{-3}$, $2 \cdot 10^{-1}$, $2 \cdot 10^{-4}$). It was established that for pure aluminium the temperature dependence of the yield point in the temperature range up to 500°K is determined fundamentally by a change in the interatomic bond forces. At elevated temperatures a more pronounced dependence was detected of the yield point on the temperature which

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys
II. Dependence of the Total and of the Uniform Deformation on the Temperature and the Speed of Deformation

is apparently due to deformations along the grain boundaries. Hardening of the aluminium alloys with magnesium is caused by static distortions of the crystal lattice which are brought about by magnesium atoms. The diffusion processes lead to a non-monotonous dependence of the yield point on the temperature, an anomalous dependence on the speed of deformation and a complication of the dependence of the mechanical properties on the composition of the alloy and on the conditions of deformation. Maxima were observed of the yield point in the temperature range of about 500°K and increased values at 80°K which are attributed to various types of diffusion processes taking place in the case of deformation under the effect of stresses. Thus, it was found that static distortions of the crystal lattice, brought about by the magnesium atoms, cause an increase in the yield point and the ultimate strength. In the here published second part of the paper, the authors

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys
II. Dependence of the Total and of the Uniform Deformation on the Temperature and the Speed of Deformation

investigate the total and the uniform deformation of alloys of aluminium with magnesium in the temperature range of 80 to 700°K for the same range of speeds of deformation. They found that the static distortions of the crystal lattice caused by magnesium atoms reduce the plasticity and that the diffusion processes taking place as a result of the stresses during deformation of alloys bring about an increase in the plasticity and complicate the temperature dependence of the total and the uniform elongations. In alloys of aluminium with magnesium, the crystal structure of which has suffered static distortions, a complicated dependence is observed of the total and the uniform elongations on the temperature and the speed of deformations. The plastic properties of such alloys is apparently determined by several factors which act simultaneously, namely: a more uniform distribution of the plastic deformation along the volume of the crystal and an

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys
II. Dependence of the Total and of the Uniform Deformation on the Temperature and the Speed of Deformation

increase of the effective volume which participates in the deformation, brings about an increase in the plasticity of the alloys; a diffusion of the atoms of the alloying elements under the effect of stresses taking place during deformation and causing a reduction of the peaks of over-stresses in the neighbourhood of non-uniformities of the crystal lattice and in the neighbourhood of microscopic cracks bring about an increase of the plasticity; an increase of the types II and III distortions during plastic deformation and an increase of the resistance to deformation in the alloys bring about a reduction in the plasticity. Obviously, the interaction of these factors will cause a sufficiently complicated dependence of the uniform and the total elongations on

SOV/126-6-1-14/33

Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys
II. Dependence of the Total and of the Uniform Deformation on the Temperature and the Speed of Deformation

the composition of the alloy and the conditions of deformation.
There are 7 figures and 9 references, all of which are Soviet.

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR (Institute of Metal Physics, Ural Branch of the Ac.Sc., USSR)

SUBMITTED: August 11, 1956

1. Aluminum-magnesium alloys--Mechanical properties
2. Crystals--Deformation 3. Crystals--Lattices
4. Crystals--Metallurgical effects

Card 6/6

08627

S/126/60/009/02/015/033

18.8200

AUTHORS: Pavlov, V.A. and Pereturina, I.A. E111/E335

TITLE: The Influence of Alloying Additions on the Value and Temperature Dependence of the Yield Point

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 2, pp 248 - 257 (USSR)

ABSTRACT: A discussion of results of previous investigations and of some new experimental data obtained on nickel and cobalt alloys is given. As in earlier work, the temperature dependence of the yield point of alloys is more complicated than that of pure metals. The position of the maximum on the temperature-yield point curves of alloys depends on the concentration of the alloying element and the rate of deformation. The change in character of the curve for alloys compared with pure metals cannot be explained by changes in interatomic bond strength. Experimental data and theoretical considerations indicate that the influence of alloying additions on the mechanical properties is due to interaction between dislocations and atoms or groups of atoms of the alloying element, which reduces the mobility of

Card1/3

The Influence of Alloying Additions on the Value and Temperature Dependence of the Yield Point

the dislocations and sometimes increases the volume of metal taking part in deformation. This increases the efficiency of use of the interatomic bond strength. The influence of admixtures on the resistance to deformation can be explained qualitatively by assuming that there is (according to Cottrell and Suzuki) a relation between the dislocations and the atoms of the admixtures, that there are non-uniformities in the concentrations of the type K state and also a redistribution of the atoms in the stress field with mobile dislocations according to shock. The strongest influence is shown by additions which cause static distortions in the original crystal lattice. In nickel-cobalt alloys, where the static distortion caused by the cobalt is small, the strengthening is due to ordering. Acknowledgments are expressed to A.N. Orlov for his comments.

There are 5 figures and 35 references, 15 of which are English, 3 German and 17 Soviet.

Card 2/3

S/126/60/009/02/015/033
E111/E335

The Influence of Alloying Additions on the Value and Temperature Dependence of the Yield Point

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals of the Ac.Sc., USSR)

SUBMITTED: August 1, 1959

Card 3/3

PERETURINA, M. F.

"Silo and Protein-Vitamin Pastes as a Source of Vitamin-A Nutrition in the [illegible] Chicks of the Russian White Variety." - Cand Agr Sci, Moscow Fur and [illegible], 1 Mar 54. Dissertation (Vechernyaya Moskva Moscow, 18 Feb 54)

SO: SUM 186, 1[illegible] Aug 1954

KUDRYAVTSEV, N. T., PERETURINA, YE. F.

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Electrodeposition of zinc-cadmium alloys. Zhur. prikl. khim. 26 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

KUDRYAVTSEV, N. T.; PERETURINA, Ye. F.

Zinc-Cadmium Alloys

Electrodeposition of zinc-cadmium alloys, Zhur. prikl. khim 26 No. 2, 1953

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

PERETYAT'KO, V.N.; ZAYKOV, M.A.

Determining final deformations and specific rolling pressures by experimental data from hot torsion testing. Izv. vys. ucheb. zav.; chern. met. 7 no.10:80-85 '64.

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1. Sibirskiy metallurgicheskiy institut.

[illegible], A.M., PERETYAZHKO, M.Z.

Chemistry, Organic - Synthesis, Glycols

Interaction of malonic, bimelic and sebacic acid esters with allyl bromide and magnesium; synthesis of bitertiary glycols of series $C_nH_{2n-}(OH)_2$.

Dokl. AN SSSR/No. 3, 1952

82

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED

PERETYAZHKO, M.Z.; PEL'KIS, P.S.

Synthesis of substituted 1,4-diphenylthiosemicarbazides and their cyclization to 2,3-diaryl-5-arylamino-1,3,4-thiodiazolines. Zhur. ob. khim. 34 no.10:3484-3486 O '64.

1. Institut organicheskoy khimii AN UkrSSR. (MIRA 17:11)

PERETYAGIN, B.M.

Number of limiting cycles of the equation $\frac{dy}{dx} = \frac{cx + dy + P(x, y)}{ax + by + Q(x, y)}$, in which $P(x, y)$ and $Q(x, y)$ are homogeneous polynomials of the nth degree. Uch. zap. Smol. gos. ped. inst. No.10:67-88 '62. (MIRA 17:1)

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"Finding Periodic Solutions of Differential Equations." (Dissertation for the Degree of Candidate of Physical and Mathematical Sciences) Min Higher Education USSR, Kazan' State U imeni V. I. Ul'yanov-Lenin, Kazan', 1955.

SO: M-1036, 28 Mar 56

PERETYAGIN, B.M.

Number of limit cycles of an equation. Izv. vys. uchsb. zav.; mat. no.1:179 '62. (MIRA 15:1)
(Differential equations)

20-1-7/64

AUTHOR: PERETYAGIN, B.M.

TITLE: On the Number of Boundary Cycles of the Equation $dy/dx = [cx + dy + P(x,y,)] / [ax + by + Q(x,y)]$, With $P(x,y)$ and $Q(x,y)$ Being Homogeneous Polynominals of the n-th Degree. (O chisle predel'nykh tsiklov uravneniya $dy/dx = [cx + dy + P(x,y)] / [ax + by + Q(x,y)]$, gde $P(x,y)$ i $Q(x,y)$ - odnorodnyye polinomy n-y stepeni. Russian).

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 1, pp 29 - 32 (U.S.S.R.)

ABSTRACT: The paper under Review investigates the problem of the maximum number of boundary cycles for the differential equation listed in the titel of the paper. In this context, $(P(x,y)$ and $Q(x,y)$ are homogeneous polynominals of the n-the degree and the coordinate origin is a singularly point of the second group. We furthermore have $\begin{vmatrix} a & b \\ c & d \end{vmatrix} \neq 0$. Some relevant prviously published papers are referred to. First of all, the paper under review transforms several times the differential equation given in the title of the paper, thus obtaining (in polar coordinates) $d\varrho/d\varphi = \varrho R_1 + \varrho^2 R_2 + \ldots = \sum_{i=1}^{\infty} \varrho^i R_i$ for the domain $(0 \leqslant \varrho \leqslant \varrho_1, 0 \leqslant \varphi \leqslant 2\pi)$.

Card 1/3

20-1-7/64

On the Number of Boundary Cycles of the Equation $dy/dx = (cx + dy + P(x,y)) / (ax + by + Q(x,y))$, With $P(x,y)$ and $Q(x,y)$ Being Homogeneous Polynominals of the n-th Degree.

In the paper under review, its author attempts to find a solution $\varrho = \varrho(\varphi)$ of this equation which satisfies the initial condition $\varrho_0 = \varrho(0)$. In this context, the ansatz of ϱ is made as a power series $\varrho = \varrho_0 \vartheta_1(\varphi, a_{ij}, b_{ij}) + \varrho_0^2 \vartheta_2(\varphi, a_{ij}, b_{ij}) +$ which converges in the domain (G)$(0 \leq \varphi \leq 2\pi; \quad 0 \leq \varrho_0 \leq \varrho_2 \leq \varrho_1)$. For the determination of the coefficients $\vartheta_k(\varphi, a_{ij}, b_{ij})$ recurrence formulae are given. If the coefficients are thus determind and if we have in the above solution ansatz $\varphi = 2\pi$, then we obtain $\varrho(2\pi) = \varrho_0 \vartheta_1(2\pi, a_{ij}, b_{ij}) + \varrho_0^2 \vartheta_2(2\pi, a_{ij}, b_{ij}) + \ldots$. The positive roots of the difference $\varrho - \varrho_0 = \varrho_0 [\vartheta_1(2\pi, a_{ij}, b_{ij}) - 1] + \varrho_0^2 \vartheta_2(2\pi, a_{ij}, b_{ij}) \ldots\ldots$ then correspond to the boundary cycles. The particular difficulty of this method consists in the determination of the structure of the coefficients of the function $\varrho(2\pi)$. The paper under review lists three relevant theorems and outlines the proofs. (No reproductions).

Card 2/3

On the Number of Boundary Cycles of the Equation $dy/dx = (cx + dy + P(x,y)) / (ax + by + Q(x,y))$, With $P(x,y)$ and $Q(x,y)$ Being Homogeneous Polynominals of the n-th Degree. 20-1-7/64

ASSOCIATION: State Pedagogic Institute Smolensk
PRESENTED BY: PETROVSKIY, I.G., Member of the Academy, on 14 February 1957
SUBMITTED: 24 September 1956
AVAILABLE: Library of Congress

Card 3/3

PERETYAGIN, V.A.

24,2120 66702

SOV/109-4-8-22/35

AUTHORS: Granovskiy, V.L., Luk'yanov, S.Yu., Spivak, G.V. and Sirotenko, I.G.

TITLE: Report on the Second All-Union Conference on Gas Electronics

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 8, pp 1339 - 1358 (USSR)

ABSTRACT: The conference was organised by the Ac.Sc.USSR, the Ministry of Higher Education and Moscow State University.

T.B. Fogel'son - "Methods of Reducing the Energy Lost in the Formation of a Breakdown".

L.I. Pivovar and V.I. Gordiyenko - "Microdischarges and pre-breakdown Currents Between Metal Electrodes in High Vacuum".

V.A. Simonov and G.P. Katukov - "Investigation of the Processes of Initiation and Development of a High-voltage Discharge in Vacuum".

B.M. Reykhrudel and G.V. Smirnitskaya - "The Characteristics of Ignition in High-vacuum in Magnetic Fields".

L.V. Tarasova et al. dealt with the transfer of the electrode material during the pre-breakdown stage in vacuum.

N.B. Rozanov et al. - "The Motion of Micro-particles of Substances During Electric Breakdown in Vacuum".

The third section dealt with the problems of electric sparks, corona and their practical applications. It was presided over by I.S. Stekol'nikov. The following papers were read:

V.I. Levitov et al. - "Probe Investigation of the a.c. Corona Fields".

G.N. Aleksandrov - "Elementary Processes in the Ionisation Zone of Corona-type Conductors at Atmospheric Pressures".

Y.A. Burmakin - "Appearance of a Corona Discharge in Hydrogen and Nitrogen"

P.N. Chistyakov et al. - "Some Properties of the Corona Discharge in Hydrogen in Coaxial, Cylindrical System".

A.S. Soboleva and B.N. Klyarfel'd - "Appearance of Discharge Phenomena Between a Point and a Plane at Gas Pressures of 10^{-3} - 1.0 mm Hg".

Ye.Yu. Reymet et al. - "Methods of Unipolar Ionisation of Air By Means of Aero-ionisers (see p 1335 of the journal).

M.P. Vanyukov et al. - "Time Spectra of the Radiation of a Spark Discharge in Inert Gases" (see p 1284 of the journal).

M.P. Vanyukov and A.A. Mak - "Production of High Temperatures by Means of Spark Discharges".

V.A. Peretyagin - "Influence of the Magnetic Field of the Electric Discharge on the Dividing Surface of Two Media".

I.S. Stekol'nikov - "New Data From the Study of Long Sparks".

M.I. Syspyev - "Properties of the Breakdown of Compressed Air in a Comparatively Uniform Field in the Presence of Localised Non-uniformities".

A.A. Vorob'yev et al. - "Pulse and Oscillographic Techniques for the Measurement of the Discharge Lags in Dielectrics" (see p 1257 of the journal).

A paper by B.N. Zolotykh dealt with the problem of the basic theory of the electric erosion (see p 1330 of the journal).

The fourth section was presided over by S.Yu. Luk'yanov and was concerned with the non-stationary and low-frequency discharges. The following papers were read:

I.G. Nekrashevich and A.A. Labud - "The Nature of the Current Interruption During the Electric Explosion of a Metal Wire".

V.A. Simonov - "Propagation of Plasma From Local Pulse Sources".

Card 7/15 G.G. Timofeyev et al. - "Observation of an Electrodynamically Compressed Arc By Means of an Electron-optical Converter".

M.S. Ioffe and Ye.Ye. Yushmanov - "Investigation of the Radial Electric Field in an Ion Magnetron".

V.A. Belyayev and M.K. Romanovskiy - "Experiments with an Electron Model of a System with Magnetic Samples".

A.M. Andrianov et al. "Distribution of Magnetic and Electric Fields in Powerful Pulse Discharges".

G.N. Harding (England) - "Spectroscopic Determination of the Plasma Temperature in the "Zeta" Equipment" (see p 1326 of the journal).

The paper by Harding aroused a lot of interest and Academician L.A. Artsimovich [illegible] the opinion that the electrons and ion te[illegible] the "Zeta" should be of the same order; [illegible] according to Harding, the electron temperatur[illegible] order than that of the i ns.

S/196/61/000/009/035/052
E194/E155

AUTHOR: Peretyagin, V.S.

TITLE: An experimental investigation of synthetic circuits for circuit-breaker testing

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.9, 1961, 36-37, abstract 9I 235. (Tr. Ural'skogo politekhn. in-ta, vol.77, 1960, 22-36)

TEXT: The article describes a synthetic circuit which ensures double forced arc-ignition in circuit breakers. A theoretical analysis is given of processes in sub-sections of the circuit when the recovery voltage section is connected after current interruption. The calculation is made using an equivalent circuit. To connect the voltage sub-circuit after current interruption a synchronising circuit is used which is based on use of the recovery voltage. The stability of the time of connection of this circuit depends on the stability of the voltage on the arc (when this latter is altered from 0 to 4000 V the connection-time scatter of the circuit is 6 - 7 microseconds). Results are given of an experimental check of the synchronisation circuit with

Card 1/2

PERETYAGINA, A. G.

PERETYAGINA, A. G.

"The Effectiveness of Commercial Crossing of Berkshire and Large White Species of Swine Under Conditions in the Leningrad Area." Cand Agr Sci, Leningrad Agricultural Inst, Leningrad, 1954. (RzhBiol, No 6, Mar 55)

SO: Sum No. 670, 29 S ep 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

L 17020-66

ACC NR. AP6006347 SOURCE CODE: UR/0413/66/000/002/0070/0071

INVENTOR: Kiselev, M. T.; Logvinov, I. A.; Nemerovskiy, L. I.; Peretyagina, T. N.; Pistsov, A. P.; Tsarevskiy, V. L.

ORG: none

TITLE: A spirometabolograph. Class 30, No. 178027

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1966, 70-71

TOPIC TAGS: spirometabolograph, human physiology, human respiration, human metabolism

ABSTRACT: An Author Certificate has been issued for a spirometabolograph consisting of a dry cavity sensor, absorber, valve housing, mouthpiece, and a system of tubes. To reduce dead space and to maintain the physiological conditions for respiration of the subject, a stopcock has been situated between the inhale and exhale valves and between the absorber and dry cavity sensor. A variation of the above can purify the breathing system by virtue of a bellows connected to the dry cavity sensor which is mounted by means of screws on a stationary lid. The bellows has a movable cover which can be disconnected from the recording mechanism. A third variation is designed

Card 1/2 UDC: 616.24—073.173—7

L 17020-66

ACC NR: AP6006347

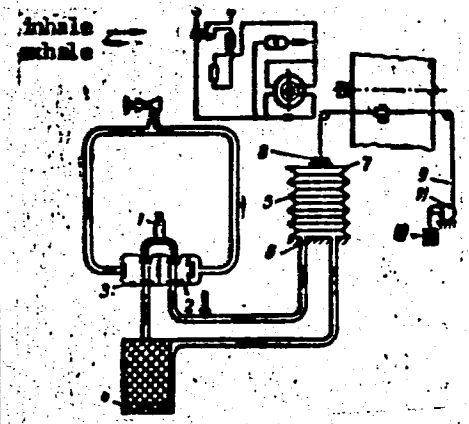


Fig. 1. Spirometabolograph

1 - Stopcock; 2 - inhale valve; 3 - exhale valve; 4 - absorber; 5 - bellows connected to the dry cavity sensor; 6 - stationary lid; 7 - movable lid; 8 - spool; 9 - cable of the balancing mechanism; 10 - weight; 11 - cam with adjustable arm.

to increase the accuracy of the investigation: A spool is attached to the movable bellows cover. A cable is attached to the spool which leads to a balancing mechanism consisting of a weight connected to a cam with an adjustable arm (see Fig. 1). Orig. art. has: 1 figure. [CD]

SUB CODE: 06/ SUBM DATE: 08Sep64/ ATD PRESS: 4207

Card 2/2 mg S

PERETYAGIN, B.M.

On the number of limit cycles of equation $\frac{dy}{dx} = \frac{cx + dy + P(x,y)}{ax + by + Q(x,y)}$ where P(x,y) and Q(x,y) are homogenous polynomials of degree n. Dokl. AN SSSR 114 no.1:29-32 My '57. (MLRA 10:7)

1. Smolenskiy gosudarstvennyy pedagogicheskiy institut im. Karla Marksa. Predstavleno akademikom I.G. Petrovskim.
(Differential equations)

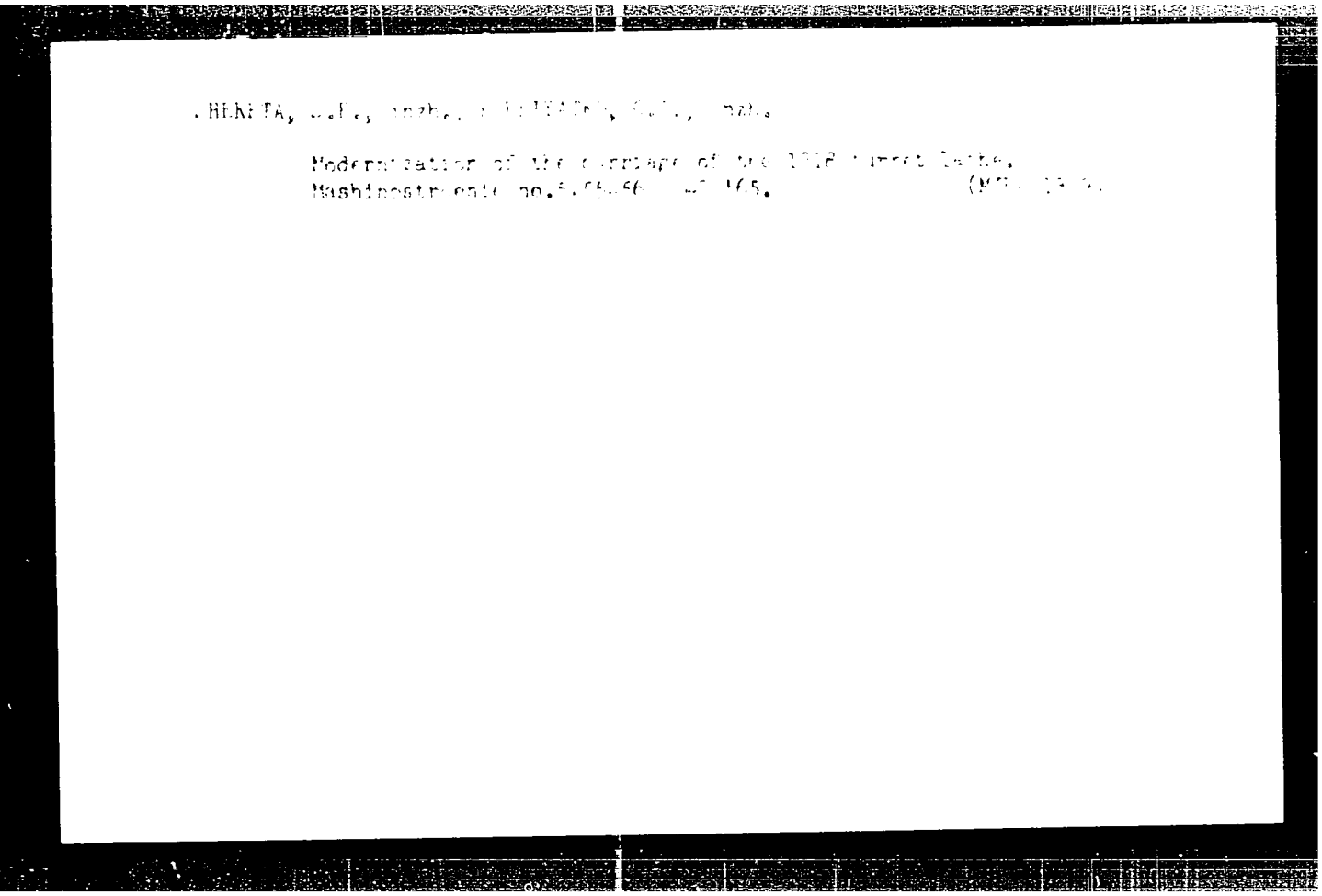
PERETYAGINA, L.D.; SUDORGINA, Ye.P.; GUROVA, T.I.

Improving the production technology of nickel chlorides. Prom. khim. reak. i osobo chist. veshch. no.1:16 '63. (MIRA 17:2)

PERETYATKEVICH, G.V.

ROL'NIK, M.A.; RAPPOPORT, L.I.; PERETYATKEVICH, G.V.

Loudspeaker communications by power cable in stopes during cutter-loader operations. Ugol' 33 no.4:27-29 Ap '53. (MIRA 11:4)
(Coal mines and mining) (Mine telecommunications)



PERETYATKO, G.I., inzh.; TRUSOV, A.F., inzh.

Six-spindle head for drilling holes and cutting threads.
Mashinostroenie no.6:85-86 N-D '65.
(MIRA 18:12)

MOROZOV, M.Ye., kand. tekhn. nauk; PERETYAT'KO, I.P., inzh.; KLYUYEVA, K.P., inzh.

Maximum limit of the increase in the output of electrometallization equipment. Trudy VNIIAvtogen no.11:117-130 '64. (MIRA 18:3)

PERETYATKO, S.

Develop a new auditing program. Fin. SSSR 19 no.8:75-76 Ag '58.
(MIRA 11:9)

1. Kontroler-revizor Ukrainskoy respublikanskoy kontory Sel'khoz-banka.
(Ukraine--Agricultural credit--Auditing and Inspection)

ZAYKOV, M.A.; PERETYAT'KO, V.N.

Criteria of the plasticity of metal. Izv. vys. ucheb. zav.; chern. met. 8 no.10:90-93 '65. (MIRA 18:9)

1. Sibirskiy metallurgicheskiy institut.

L 39763-65 EWT(m)/EWP(w)/EWA(d)/T-2/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c)
ACCESSION NR: AP4047337 Pf-4 HW/EM MJW/JD/ S/0148/64/000/010/0080/0085

AUTHOR: Peretyat'ko, V. N.; Zaykov, M. A.

TITLE: Determination of critical deformation and specific pressure during rolling on the basis of hot twist test results

SOURCE: IVUZ. Chernaya metallurgiya, no. 10, 1964, 80-85

TOPIC TAGS: hot twist test, deformation, breaking load, failure, critical deformation, specific pressure, rolling

ABSTRACT: How twist tests have gained wide popularity because of their suitability to readily converted machinery and low and high-temperature testing. The cross-section of specimens does not change during testing which is another advantage. In exposing 6 and 30 mm Kh18N10T steel specimens to 900C, holding time in excess of 7 minutes does not affect test results. The strength of the specimens was improved by the application of longitudinal deformation which should amount to 2% of the breaking load. An increase in this preliminary deformation -- it was

Card 1/2

varied from 5 to 45 kg load application at 900 to 1000 C -- decreased the magnitude of the torsional moment and the number of torsions before failure occurred. By accelerating the test, the torsional moment increases and plasticity is adversely affected. The mean rate of deformation is written

$$u_{cp} = \frac{N}{60 z_n} \ln\left(1 + \frac{\pi d_0 z_n}{2 l_0}\right),$$

where u_{cp} is the mean testing rate during torsion, 1/sec; z_n-number of torsions before failure; d_0, l_0 -dimensions of specimens, mm; N-rate of testing machine, rpm. The combined effect of plasticity and resistance to deformation determine the real deformability of the specimens with a given method of treatment under pressure. The authors refer to this combined effect as "rollability". The results of the twist tests supply the specific pressure during rolling. All results were verified on an industrial scale by using the cogging and sheet mills of the Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine). Orig. art. has: 4 figures, 4 tables and 7 equations.

L 39763-65
ACCESSION NR: AP4047337

ASSOCIATION: Sibirskiy metallurgicheskiy institut (Sibirian Metallurgical Institute)

SUBMITTED: 17May63 ENCL: 01 SUB CODE: MM

NR REF SOV: 011 OTHER: 000

Card 3/4

PERETYAT'KO, V.N.; ZAYKOV, M.A.

Center of deformation in the periodic rolling of wedge-shaped strips. Izv.vys.ucheb.zav.; chern.met. 5 no.4:82-90 '62. (MIRA 15:5)

1. Sibirskiy metallurgicheskiy institut.
(Rolling (Metalwork)) (Deformations (Mechanics))

PERETYAT'KO, V.N.; ZAYKOV, M.A.

Evaluating the rigidity of stressed state. Izv.vys.ucheb.zav.; chern. met. 8 no.4:117-122 '65. (MIRA 18:4)

1. Sibirskiy metallurgicheskiy institut.

SOV/137-59-1-1231

Translation from: Referativnyy zhurnal Metallurgiya, 1959, Nr 1, p 168 (USSR)

AUTHORS: Mikhaylets, N S, Tarasko, D I, Peretyatko, V N

TITLE: How to Improve the Mechanical Properties of Steel (Scientific Engineering Conference, Stalinsk, May 1958) (Puti uluchsheniya mekhanicheskikh svoystv stali (Nauchnotekhn konferentsiya Stalinsk, may 1958 g.))

PERIODICAL: Izv vyssh uchebn zavedeniy Chern metallurgiya 1958 Nr 5 pp 197-199

ABSTRACT: Information on the scientific engineering conference convoked by the Kuznetsk Inter-oblast Management Board of the NTOChM (Scientific-engineering Society for Iron and Steel) and the Directorate of the Kuznetsk Metallurgical Kombinat.

I B

Card 1/1

PERETYAT'KO, V.N.; SADCHIKOV, V.M.

Dismountable electric furnace for torsion tests of metals at high temperatures. Zav. lab. 30 no.9:1146-1147 '64. (MIRA 18:?)

1. Sibirskiy metallurgicheskiy institut.

MIRENSKIY, M.L.; PERETYAT'KO, V.N.

Calculating the diameters of roughing rolls on a three-high mill with mating grooves. Izv.vys.ucheb.zav.; chern.met. 5 no.6:91-95 '62. (MIRA 15:7)

1. Kuznetskiy metallurgicheskiy kombinat i Sibirskiy metallurgicheskiy institut.
(Rolls (Iron mills))

PERETYAT'KO, V.N.; ZAYKOV, M.A.

Plasticity of carbon steels. Izv.vys.ucheb.zav.; chern.met. 4 no.6:67-74 '61. (MIRA 14:6)

1. Sibirskiy metallurgicheskiy institut.
(Steel—Testing) (Plasticity)

ZAYKOV, M.A., kand.tekhn.nauk, dots.; PERETYAT'KO, V.N., inzh.

Criteria of plasticity in press working of metals. Izv.vys. uchob.zav.; chern.met. 2 no.8:75-86 Ag '59. (MIRA 13:4)

1. Sibirskiy metallurgicheskiy institut. Rekomendovano kafedroy obrabotki metallov davleniyem Sibirskogo metallurgicheskogo instituta.
(Metalwork) (Plasticity)

ZAYKOV, M.A., kand.tekhn.nauk dots.; SHAMETS, Ya.V., insh.; PERETYAT'KO, V.N., inzh.

Hardening curve in the hot rolling of steel. Izv.vys.ucheb.zav.; chern.met. 2 no.9:73-82 S '59. (MIRA 13:4)

1. Sibirskiy metallurgicheskiy institut. Rekomendovano kafedroy obrabotki metallov davleniyem Sibirskogo metallurgicheskogo instituta.
(Rolling (Metalwork)) (Steel--Hardening)

S/148/62/000/004/006/006
B193/E383

AUTHORS: [illegible]'o, V.N. and Zaykov, L.A.

TITLE: [illegible] methods of calculations pertaining to technological processes of the squeezing group of metal-working operations

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 4, 1962, pp. 204 - 206

TEXT: A conference devoted to the above subject and organized by Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute), Leningradskiy mekhanicheskiy institut (Leningrad Mechanical Institute), Sverdlovskoye upravleniye nauchno-tekhnicheskogo obshchestva mashinostroitel'noy promyshlennosti (Boards of the Sverdlovsk and Leningrad Machine-building Industrial Research Associations) and Sverdlovskoye upravleniye Nauchno-tekhnicheskogo obshchestva chernoy metallurgii Tsentral'nogo byulletenya tekhnicheskoy informatsii Sverdlovskogo sovnarkhoza (Board of Sverdlovsk Scientific Technical Association of Ferrous Metallurgy of the Central Bulletin of Technical Information of the Sverdlovsk

Card 1/4

Sovnarkhoz)
was convened on November 14 - 18, 1961 in Sverdlovsk.
340 delegates, representing 23 higher-educational establishments, 42 industrial plants and 22 research and development institutes of the Soviet Union attended. The proceedings comprised sections on "drawing and rolling", "tube production" and "forging, stamping and extrusion".
After an opening address by the chairman of the Orgkomitet, Doctor of Technical Sciences Professor I.Ya. Tarnovskiy, a paper on "The role of science and theoretical studies in the development of improved methods of metal-working by the squeezing group of operations" was read by Doctor of Technical Sciences Professor Ye.V. Pal'mov.
Corresponding Member of the AS USSR A.I. Tselikov delivered a paper devoted to the determination of roll pressure.
Corresponding Member of the AS USSR A.A. Il'yushin read a paper on the present state and application of the general theory of plasticity to the metal-working of the squeezing group operations. The problem of determination of the plasticity (workability) in

Engineering methods ....

the theoretical calculations of plastic working of metals was delivered by Doctor of Technical Sciences S... S... Shestopalov.
Other reports delivered during the plenary session included "Methods of linearization of basic equations of the theory of plasticity" by Doctor of Technical Sciences Ye.P. Unksov, "On the application of variation equations of the mechanics of plastic media in the development of engineering methods of calculations of metal-working processes of the squeezing group" by I.Ya. Tarnovskiy and "Development of the theory of plastic shaping of metals" by A.D. Tomlenov.
In the section "rolling and drawing", 35 papers were delivered; their subjects can be divided into the following groups:
1) Mathematical analysis of metal-working processes of the squeezing group;
2) Kinematics of the metal-working processes of operations of the squeezing group;
3) Energetic conditions during deformation;
4) Deformation of metals in rolls of complex shape;

Card 3/4

5) Distribution of stresses and strains in rolls;
6) Rolling of bi-metals, extrusion, plasticity, etc.
Particular interest was aroused by papers delivered by Doctor of Technical Sciences P.I. Polukhin and his co-workers on the application of photo-elastic methods for the analysis of stresses and strains in rolling.
The problem of the technological foundations of automation was discussed only in one paper by Candidate of Technical Sciences V.I. Vydrin.
In the 10 papers devoted to tube production, the following problems were discussed: study of specific pressure during tube-rolling; the state of stress during piercing; the physical nature of the piercing process.
26 papers delivered during the session on forging, stamping and extrusion were devoted mainly to analysis of the state of stress and strain, investigation of pressures required and selection of the shape of the blanks in forging and stamping operations.
ASSOCIATION: Sibirskiy metallurgicheskiy institut (Siberian Metallurgical Institute)
SUBMITTED: December 17, 1961
Card 4/4

KOBYZEV, V.K.; DUBROVIN, A.K.; PERETYAT'KO, V.N.; LASKARONSKIY, E.N.

Heating and rolling EI171 and EI432 stainless steel ingots. Stal' 23 no. 3:245-246 Mr '64. (MIRA 17:5)

1. Kuznetskiy metallurgicheskiy kombinat.

S/0133/64/000/003/0245/0246

ACCESSION NR: AP4019480

AUTHORS: Koby*zev, V. K.; Dubrovin, A. K.; Paratyat'ko, V. N.; Laskaronskiy, E. N.

TITLE: Heating and rolling ingots of stainless steels EI171 and EI432

SOURCE: Stal', no. 3, 1964, 245-246

TOPIC TAGS: stainless steel, heat treatment, rolling effect, roll pressure, heat resistant steel, chromium nickel steel, steel EI171, steel EI432

ABSTRACT: Rolling of chromium-nickel acid-resistant and heat-resistant steels EI171 (Kh17N13M2T) and EI432 (Kh17N13M3T) was successfully attempted after a single heating at the Kuznetsk Metallurgical Combine. The work was done to improve the former method which called for two heatings and light pressure rolls, and which often produced large tears and numerous hair cracks in the metal. In the present experiments metal was malleablized at 1240-1260C for 6 hours. This allowed increasing the size reduction to 25-55 mm and completing the rolling process in 23 passes. The terminal temperature was above 1100C and was within the range of maximum steel plasticity. The surface quality was found to improve with the increase of the terminal temperature (see Fig. 1 on the Enclosure). The total heating time was reduced from 16 hr 45 min to 12 hr 15 min; the number of passes

Card 1/3

PERETYAT'KO, V.N.; ZAYKOV, M.A.

Engineering methods of calculating technological processes of the press working of metals. Izv.vys.ucheb.zav.; chern.met. 5 no.4:204-206 '62. (MIRA 15:5)

1. Sibirskiy metallurgicheskiy institut.
(Rolling (Metalwork)) (Forging)

ZAYKOV, M.A., kand.tekhn.nauk, dotsent; TSELUIKOV, V.S., inzh.; KAMINSKIY, D.M., kand.tekhn.nauk, dotsent; PERETYAT'KO, V.N., inzh.; KAFTANOV, M.P., inzh.; PERMYAKOV, V.M., inzh.; PROKOP'YEV, A.V., inzh.

Investigating and improving cogging conditions of sheet rolling mills. Izv. vys. ucheb. zav.; chern.met. no.5:131-144 My '58. (MIRA 11:7)

1.Sibirskiy metallurgicheskiy institut.
(Rolling mills)

MIKHAYLETS, N.S., kand.tekhn.nauk; TARASKO, D.I., kand.tekhn.nauk;
PERETYAT'KO, V.N., inzh.

Ways of improving mechanicl properties of steel. Izv. vys. ucheb. zav.; chern.met. no.5:197-199 My '58. (MIRA 11:7)
(Steel--Metallurgy)

TSELUYKOV, V.S.; PERETYAT'KO, V.N.; KAMINSKIY, D.M.; MERKUTOV, V.N.

Potentialities for increasing the output of medium sheet mills. Izv.vys.ucheb.zav.; chern.met. 8 no.6:113-117 '65. (MIRA 18:8)

1. Sibirskiy metallurgicheskiy institut.

PERETYAT'KO, V.N.

New developments in the field of rolling techniques. Izv. vys. ucheb. zav.; chern. met. 8 no.10:180-181 '65. (MIRA 18:9)

1. Sibirskiy metallurgicheskiy institut.

SKOBLO, David Il'ich, kandidat tekhnicheskikh nauk; GLYBIN, Illarion Petrovich, kandidat tekhnicheskikh nauk; PERETYATKO, Yevgeniy Nikolayevich, inzhener; KASPERSKAYA, Ye.I., redaktor; BONDARENKO, O.P., redaktor; MATUSEVICH, S.M., tekhnicheskiy redaktor

[Automatization of production processes in the food industry] Avtomatizatsiia proizvodstvennykh protsessov pishchevoi promyshlennosti. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1957. 363 p. (MLRA 10:7)
(Automatic control) (Food industry)

VIL'DANOV, G.; RASNER, Ya.; PERETYAT'KO, Ya.; POPLAVSKIY, D.

Railroad personnel should get first class service! Obshchestv. pit. no.12:35-38 D '59. (MIRA 13:4)

1. Nachal'nik otdela obshchestvennogo pitaniya zheleznodorozhnogo upravleniya rabochego snabzheniya Kazakhskoy dorogi (for Vil'danov). 2. Starshiy inspektor torgovogo otdela zheleznodorozhnogo upravleniya rabochego snabzheniya Kazakhskoy dorogi (for Rasner). 3. Nachal'nik zheleznodorozhnogo upravleniya rabochego snabzheniya Yuzhno Ural'skoy dorogi (for Peretyat'ko). 4. Nachal'nik otdela obshchestvennogo pitaniya zheleznodorozhnogo upravleniya rabochego snabzheniya Yugo-Zapadnoy dorogi (for Poplavskiy).
(Restaurants, lunchrooms, etc.) (Railroads--Employees)

PERETYATKO, Ye.P.

Modification of the design of conveyers for small output assembly lines. Shvein.prom. no.2:9 Mr-Ap '61. (MIRA 14:4)

1. Kiylowkqy a shveynaya fabrika No.4.
(Kiev--Clothing industry) (Conveying machinery)

PEL'KIS, P.S.; PERETYAZHKO, M.Z.

Synthesis of substituted erivatives of 1,4-diphenylthiosemicarbazide.
Zhur. ob. khim. 31 no. 11:3726-3728 N '61. (MIRA 14:11)

1. Institut organicheskoy khimii AN Ukrainskoy SSR.
(Semicarbazide)

PEL'KIS, P.S.; PERETYAZHKO, M.Z.

Synthesis and study of the properties of derivatives of 1,4-diphenylthiosemicarbazide. Ukr. khim. zhur. 29 no.2: 172-174 '63. (MIRA 16:6)

1. Institut organicheskoy khimii AN UkrSSR.
(Semicarbazide)

PERETYAZHKO, M.Z.; PEL'KIS, P.S.

Synthesis of 2,3-diaryl-5-arylamino-1,3,4-thiodiazoline. Ukr.khim. zhur. 30 no.2:206-208 '64. (MIRA 17:4)

1. Institut organicheskoy khimii AN UkrSSR.

PERETYAZHKO, M.Z.; PEL'KIS, P.S.

S-alkyl derivatives of substituted 1,4-diphenylthiosemicarbazides. Ukr. khim. zhur. 29 no.4:418-420 '63. (MIRA 16:6)

1. Institut organicheskoy khimii AN UkrSSR.
(Semicarbazide)

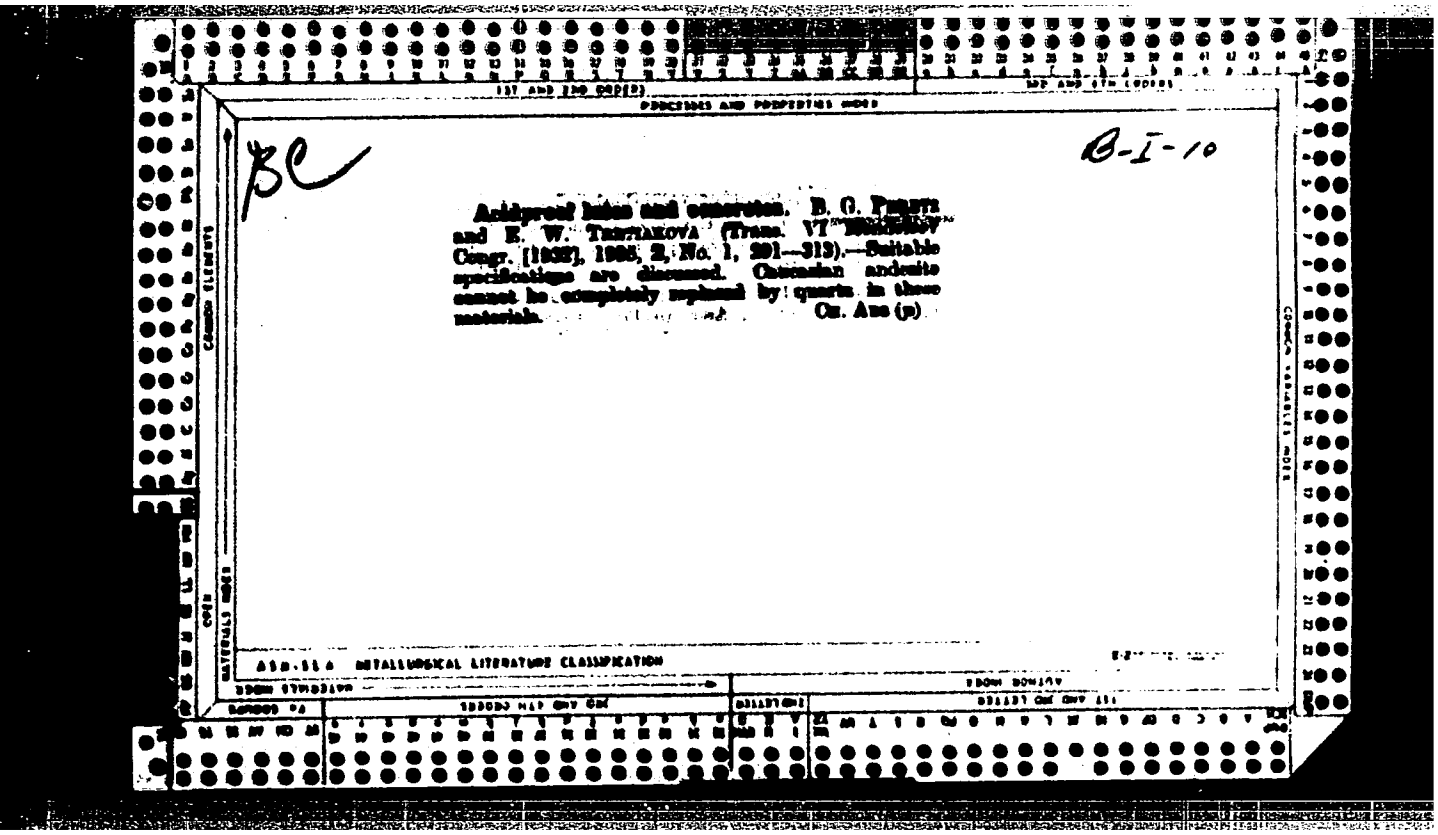
PEL'KIS, P.S.; PERETYAZHKO, M.Z.

Synthesis and study of the properties of carboxy- and sulfonamide-substituted derivatives of 1,4-diphenylthiosemicarbazide. Ukr. khim. zhur. 26 no.5:637-640 '60. (MIRA 13:11)

1. Institut organicheskoy khimii AN USSR.
(Semicarbazide)

LOKTIONOVA, N.A.; RASTVOROVA, N.M.; KOVRIZHNYKH, V.G.; KOMAROVA, N.K.; TELIS, M.Ya.; DOBATKIN, V.I., rukovoditel' raboty; Prinimali uchastiye: VINOKUROV, N.G.; PONAGAYBO, Yu.N.; PERETYKINA, I.N.; BULGAKOV, G.F.; PYATUNINA, V.I.; TITKOV, S.M.; KALMYKOV, K.V.; BRASLAVSKIY, D.N.; VEYSMAN, S.Ya.; APER'YANOVA, N.N.; PANTYUSHKOVA, N.S.; PRIVEZENTSEVA, T.V.

Ways to reduce warping of large-size parts made of the AK4-1 alloy. Alium. splavy no.3:271-284 '64.
(MIRA 17:6)

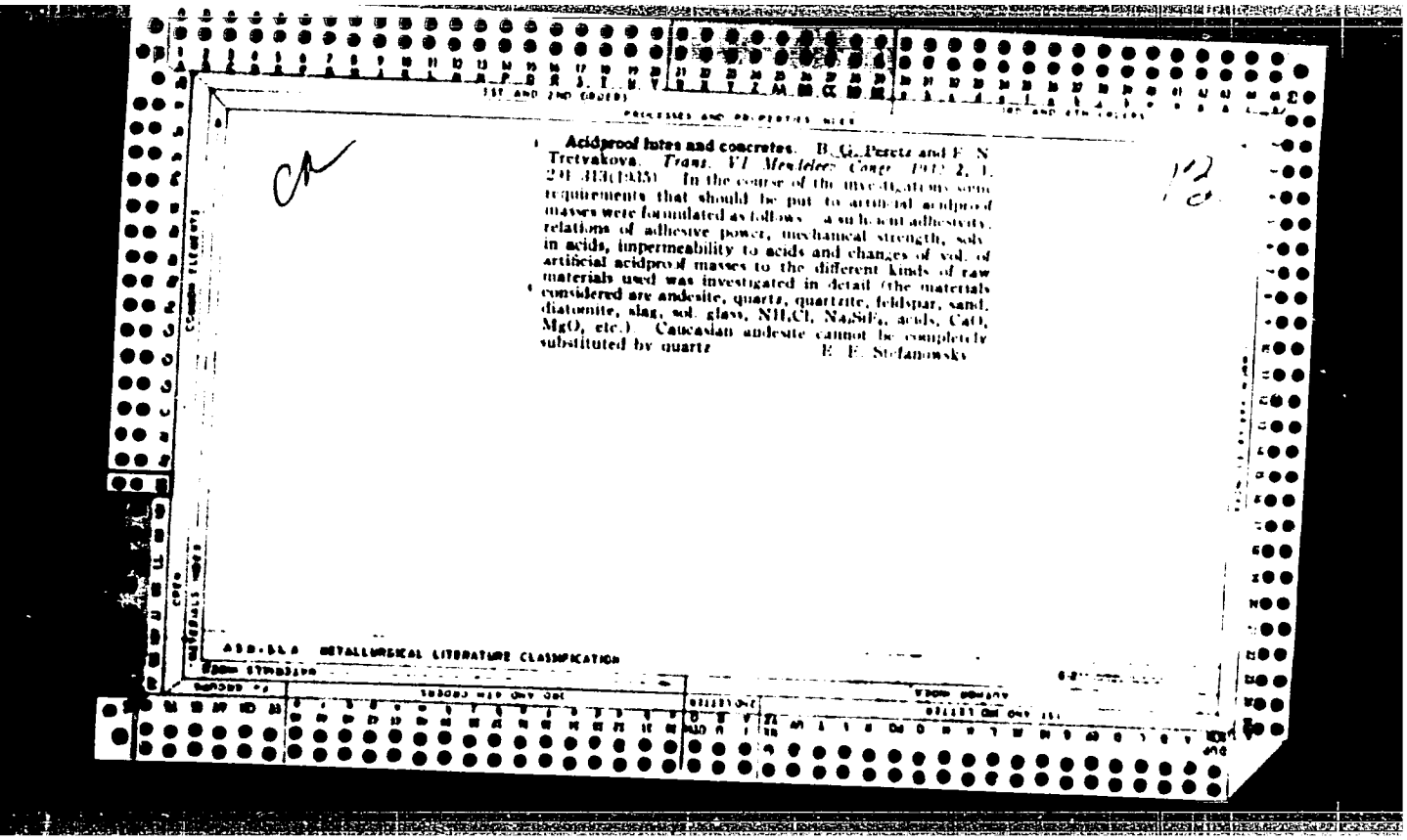


BC

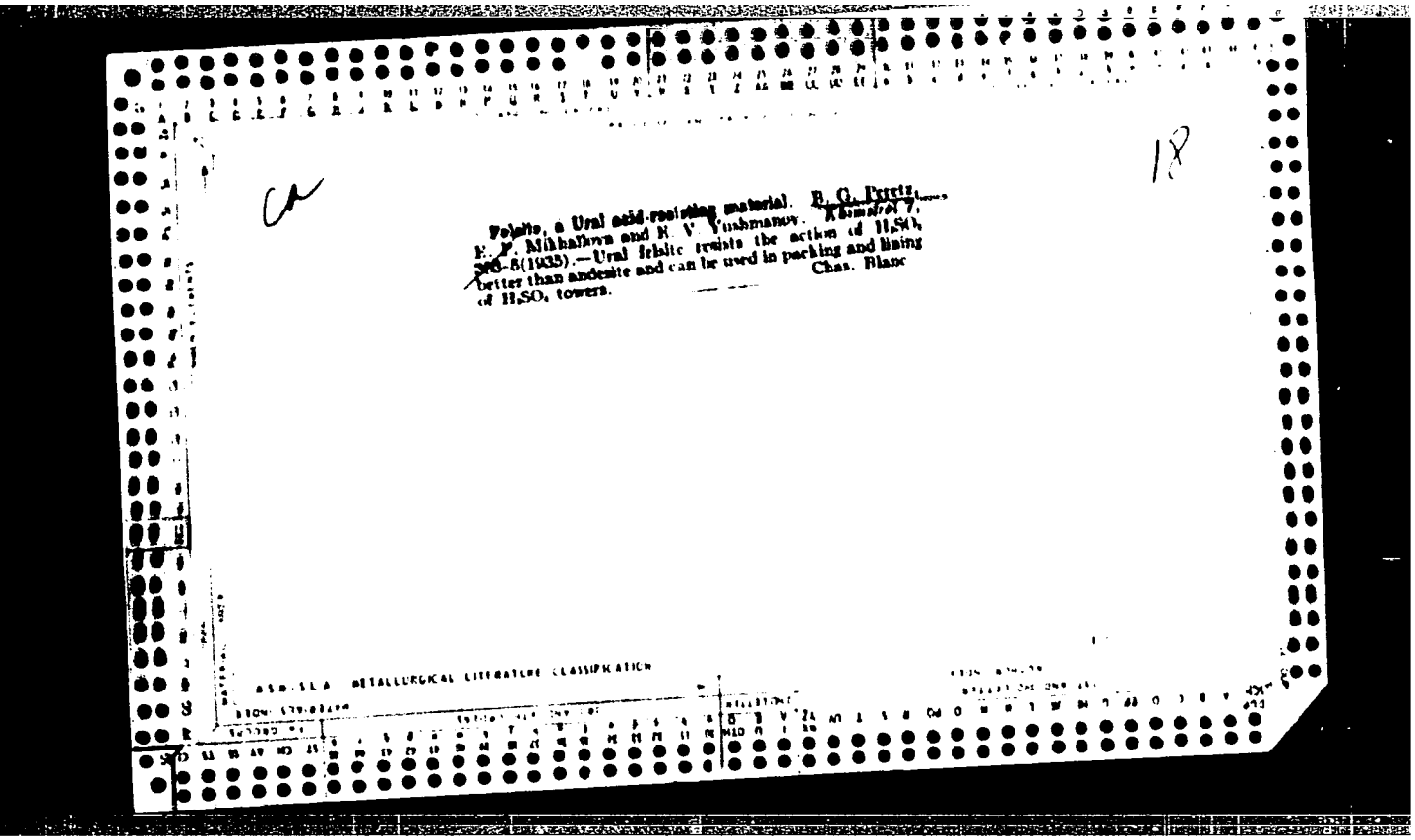
B-I-10

Acidproof bricks and concretes. B. G. Pegrov and E. W. Tretyakova (Trans. VT [illegible] Congr. [1932], 1936, 2, No. 1, 301—319).—Suitable specifications are discussed. Caucasian andesite cannot be completely replaced by quartz in these materials. Ch. Abs (p)

ASTM-SIA METALLURGICAL LITERATURE CLASSIFICATION



Acidproof lutes and concretes. B. G. Peretz and E. N. Tretyakova. *Trans. VI Mendeleev Congr.* 1932, 2, 1, 241–313(1935). In the course of the investigations some requirements that should be put to artificial acidproof masses were formulated as follows: sufficient adhesivity, relations of adhesive power, mechanical strength, solv. in acids, impermeability to acids and changes of vol. of artificial acidproof masses to the different kinds of raw materials used was investigated in detail (the materials considered are andesite, quartz, quartzite, feldspar, sand, diatomite, slag, sol. glass, NH_4Cl, Na_2SiF_6, acids, CaO, MgO, etc.). Caucasian andesite cannot be completely substituted by quartz. E. F. Stefanowsky



Feldite, a Ural acid-resisting material. R. G. Ferris. F. F. Mikhailova and N. V. Yushmanov. Ogneupory 7, 305-6(1935).—Ural feldite resists the action of H_2SO_4 better than andesite and can be used in packing and lining of H_2SO_4 towers. Chas. Blanc

CURIEVICI, I.; PERETZ, D.

Research on cooling granulated ammonium nitrate in fluidized layer.
Rev chimie Min petr 13 no.7:401-404 Jl '62.

BRANISTE, C.; PERETZ, D.; SERBAN, Silvia [deceased]

Conduct of special carbon steels and those poorly alloyed to phosphatization. Studii chim Iasi 13 no.2:311-317 '62.

PERETZ, D.

Determination of the thermal conductivity of liquids in an unsteady (temperature) regime. Teodor I. Câmpan and David Peretz. *Bul. inst. politeh. Iaşi* [7], 3, 185–94(1957). —An app. for measuring the thermal cond. of liquids is described. The liquid is contained in a cylindrical glass vessel provided with a double bottom, and is initially at a desired uniform temp. A cooling agent is circulated through the double bottom and the temp. at a point below the surface of the liquid, along the axis of the vessel, is detd. at a specified time after cooling has been started. The measurements may be influenced by convection currents and by various end effects, but such disturbances can be minimized by a proper choice of exptl. conditions. The accuracy of the method is discussed and thermal cond. data are reported for H_2O, glycerol, and EtOH in the temp. ranges from about 13 to 89°, 14 to 72°., and 16 to 54°, resp.

S. Alexander Stern

Peretz, D.

15

Chrome-yellow and gas-black paints for corrosion protection of iron. Constantin Branişte, David Peretz, and Silvia Serban. *Bul. inst. politeh. Iaşi* [N.S.] 4(8), Nos. 3–4, 183–90(1958)(in German).—C.d. and resistance were measured over a 10-day period to study the behavior of paints on sheet iron and as free films on cellophane during immersion in cond. water. The paints contained, in addn. to drier soln., 48% chrome yellow (I) and 46% linseed oil (II), or linden oil (III); 15.5% black (IV) and 81% II; 11.9% IV and 85.29% III. With I paints, no current flows initially; but after 9 hrs., the protective oxide layer is destroyed. It is partially reformed, but after 5 days 60 × 10^{-10} amp./sq. cm. current was measured. The free film had a similar decrease in resistance. The best corrosion protection was obtained with the III and IV paint with a current flow of 5 × 10^{-10} amp./sq. cm. after 8 days. Khaki paints contg. 34.4 I, 5.17 IV, and 57.43% oil had a residual current of 10 × 10^{-10} amp./sq. cm. with II and 5 × 10^{-10} amp./sq. cm. with III oil. Konrad Parker

6

PERETZ, DAVID

RUMANIA/Atomic and Molecular Physics - Heat D-6

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 7909

Author : Campan Teodor, Peretz David
Inst : -
Title : Determination of the Heat Conduction of Liquids in Non-Stationary Mode

Orig Pub : Bul. Inst. politehn. Nasi, 1957, 3, No 1-2, 185-194

Abstract : To determine the heat conduction of liquids, use is made of the method of half-bounded and homogeneous body, containing no internal sources of heat. The temperature of a point, located at a distance x from the surface Yx, which is established after a time τ elasped from the instant of the cooling of the liquid, is a function of the Fourier criterion and of the temperature difference. The numerical value of these functions is taken from tables, the temperature t, the time, τ, and the distance, z, and measured, the specific weight and the specific heat C_p of the liquid are known, and thus, the heat conduction of the liquid is calculated.

Card : 1/2

PEREVA, Vladimir Mikhaylovich; PELL, V.G., dots., kand. tekhn. nauk, red.; ALEKSANDER, I.N., inzh., red.; RAKOVSKIY, V.V., inzh., red.; BARANOV, A.M., red.; AKSEL'ROD, I.Sh., tekhn. red.

[German-Russian dictionary of motion-picture and photographic technology]Nemetsko-russkii slovar' po kinofototekhnike. Pod obshchei red. V.G.Gellia. Red. I.N.Aleksander, V.V.Rakovskii. Moskva, Glav.red. inostr. nauchno-tekhn. slovarei Fizmatgiza, 1962. 583 p. (MIRA 15:12)

(Motion pictures—Dictionaries) (Photography--Dictionaries) (German language—Dictionaries—Russian)

PEREVALOV, G.Ye.

A measure of sets lying on two-dimensional continua. Sib. mat. zhur. 3 no.4:575-581 Jl-Ag '62. (MIRA 15:7)
(Aggregates)

PEREVALOV, V.

Lomonosov and the Ukraine. Nauka i zhyttia no.11:29-30 N '61.
(MIRA 14:12)
(Lomonosov, Mikhail Vasil'evich, 1711-1765)

PERUVALO, V.G.; KRAPAIN, B.I.

Ways of improving the purification of oil-field waste waters.
Neft. khoz. 38 no.7:29-33 Jl '60. (MIRA 14:10)
(Sewage--Purification)

PEREVALOV, N.S.

USSR/Human and Animal Physiology - Blood. V-4

Abs Jour : Ref Zhur - Biol., No 1, 1958, 3866

Author : N.S. Perevalor
Inst : -
Title : An Assembling Syphon for "Native" Plasma Transfusion.

Orig Pub : Vopr. travmatil. i ortopedii, Issue 4, Irkutsk, 1957, 52-54

Abstract : No abstract.

Card 1/1

PEREVALOV, A.A.

Data on the propagation biology of the hare Lepus tibetanus.
Zool.zhur. 35 no.1:141-154 Ja '56. (MLRA 9:5)

1. Kazakhstanskoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo instituta okhotnich'yego promysla.
(Hares)

PEREVALOV, A. A.

"The Sand Hare (Ecology and Hunting in Kazakhstan)." Cand Biol Sci, Inst of Zoology, Acad Sci Kazakh SSR, Alma-Ata, 1954. (RZhBiol, No 8, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

PEREVALOV, D.M., inzhener.

Use of fork-lift trucks in the repair of open-hearth furnaces. (MLRA 7:9)
Mekh.trud.rab. 8 no.5:45 Jl '54.
(Fork-lift trucks)

PEREVALOV, G.Ye.; KRAPIN, S.P., dotsent, otv. red.; MISHAGIN, V.N., kand. tekhn.nauk, red.; PEREVALOV, G.Ye., starshiy prepodavatel', red.

[Linear measure of plane continua.] O lineinoi mere ploskikh kontinuumov. [Omsk] 1962. 26 p. (Tyumen'. Gosudarstvennyi pedagogicheskii institut. Kafedra matematiki. Uchenye zapiski, vol.13, no.3) (MIRA 18:6)